



100 GROVE ST. | WORCESTER, MA 01605

July 21, 2023

Planning Board
Grafton Municipal Center
30 Providence Road
Grafton, MA 01519

T 508-856-0321

F 508-856-0357

gravesengineering.com

**Subject: Estates at Bull Meadow
Updated Engineer's Opinion Construction Cost Estimates**

Dear Planning Board Members:

Per the request of the Applicant and the Grafton Planning Department, Graves Engineering, Inc. (GEI) has updated our previous engineer's opinion construction cost estimates for the Estates at the Bull Meadow Subdivision in North Grafton, Massachusetts. The project was divided into two sections, and as requested an estimate was prepared for each section. The updated estimates supersede our previous estimates dated July 21, 2021.

Please find attached the point-by-point items of the Section 1 and Section 2 "work remaining" and "100% cost-to-construct" estimates based upon the following:

- The estimates are based upon the plan set entitled "Definitive Conventional Subdivision Plans, Estates at Bull Meadow, North Grafton, Massachusetts" dated June 10, 2016 and last revised September 20, 2018, prepared by McCarty Engineering, Inc.
- The estimates include work associated with road and infrastructure construction. The estimates do not include any of the proposed work associated with lot development.
- The street lights are on during the day and photo cells appear to be missing. A line item was added for photo cells.
- Street trees were recently planted but some are distressed.
- In Section 1, two line items "Reseeding" and "Sediment Removal" have been included in the Infiltration Basin costs. Basin 1 and Basin 3 had accumulated sediment that will need to be removed before vegetation is established.
- In Section 1, there topsoil and seed are missing adjacent to the curb cuts located at the intersection of Appaloosa Drive (fka Paddock Ridge Drive) and Bridle Ridge Drive.
- In Section 2, there is erosion at the end of retaining wall on northwest of Lot 15. The eroded area needs to be stabilized.
- There has been a 20% administration and contingency added to the "work remaining" estimate for inspections, contract administration and inflation.

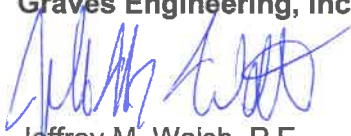
The purpose of our construction cost estimates is to provide the Grafton Planning Board with an "engineer's opinion" of the possible construction value for the project. Our estimates are based upon typical municipally-bid public works projects subject to state wage rates. We use state wage rates as the municipality will be required to pay prevailing state wage rates should they

ultimately become responsible for completing the project. The rates indicated within this estimate reflect current market conditions.

In addition, the construction estimate should not be construed to be a final punch list of items that are not complete. At each drawdown requested by the developer, individual line items will be evaluated for completeness, unit prices for each item revised to reflect the current cost of work, and additional items added or deleted from the estimate, if needed. Streets and applicable amenities are not considered complete until a determination is made by the Grafton Planning Board.

If you have any questions or comments concerning these cost estimates, please feel free to contact our office.

Very truly yours,
Graves Engineering, Inc.



Jeffrey M. Walsh, P.E.
Principal

Attachments:
Engineer's Opinion Construction Cost Estimates (2)

cc: David Russell; Blackfoot Capital



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SITE DEVELOPMENT/SUBDIVISION CONSTRUCTION BUDGET						
PROJECT: ESTATES AT BULL MEADOW - SECTION 1 PADDOCK RIDGE DRIVE STATION 0+00 TO 12+50 & CARRIAGE HOUSE LANE STATION 0+00 TO 5+38						
DATE: July 21, 2023						
Budgets of work for the entire project and for work yet to be completed.						
The following construction budget is based upon the Definitive Plan last revised:				09/20/18		
This estimate is based upon site visits performed through:				07/20/23		
	UNITS	\$/UNIT	100% COST ESTIMATE QUANTITY	100% COST ESTIMATE VALUE	CONSTRUCTION REMAIN'G QUANTITY	07/20/23 VALUE
RIGHT OF WAY						
Clear & Grub	Acres	\$15,000.00	1.7	\$25,500.00	0	\$0.00
Finish Grading (Grass plots only)	Sq. Yds.	\$3.00	3,600	\$10,800.00	0	\$0.00
Spread Loam	Sq. Yds.	\$3.00	3,600	\$10,800.00	10	\$30.00
Hydroseeding	Sq. Yds.	\$2.00	3,600	\$7,200.00	450	\$900.00
Trees	Each	\$400.00	78	\$31,200.00	2	\$800.00
ROADWAY						
Prep Subgrade	Sq. Yds.	\$5.00	5,360	\$26,800.00	0	\$0.00
Gravel Base (12")	Cu. Yds.	\$45.00	1,790	\$80,550.00	0	\$0.00
Fine Grade & Roll	Sq. Yds.	\$5.00	5,360	\$26,800.00	0	\$0.00
Binder Course (2.75" Compacted Thk'ness)	Tons	\$105.00	815	\$85,575.00	0	\$0.00
Top Course (1.5" Compacted Thk'ness)	Tons	\$105.00	450	\$47,250.00	0	\$0.00
Granite Transition Pieces	Each	\$300.00	24	\$7,200.00	0	\$0.00
Granite Curb Inlets (Single)	Each	\$400.00	7	\$2,800.00	0	\$0.00
Granite Curb Inlets (Double)	Each	\$500.00	3	\$1,500.00	0	\$0.00
Vertical Granite Curb	Lin. Ft.	\$45.00	140	\$6,300.00	0	\$0.00
Sloped Granite Edging	Lin. Ft.	\$32.00	3,150	\$100,800.00	0	\$0.00
Street Lights	Each	\$3,000.00	6	\$18,000.00	0	\$0.00
Street Light Photo Cells	Each	\$400.00	0	\$0.00	6	\$2,400.00
Raise Structures (Sewers, Drains, etc.)	Each	\$425.00	21	\$8,925.00	0	\$0.00
Asphalt Emulsion (Tack Coat)	Gal.	\$8.00	270	\$2,160.00	0	\$0.00
Street Sign	Each	\$125.00	2	\$250.00	0	\$0.00
Boulder Retaining Wall	Lin. Ft.	\$25.00	110	\$2,750.00	0	\$0.00
SITE WORK						
Clear & Grub (slopes outside ROW)	Acres	\$15,000.00	0.3	\$4,050.00	0	\$0.00
Finish Grading (slopes outside ROW)	Sq. Yds.	\$3.00	600	\$1,800.00	0	\$0.00
Spread Loam (slopes outside ROW)	Sq. Yds.	\$3.00	1,800	\$5,400.00	0	\$0.00
Hydroseeding (slopes outside ROW)	Sq. Yds.	\$2.00	1,800	\$3,600.00	0	\$0.00
SIDEWALK						
Prep Subgrade	Sq. Yds.	\$5.00	850	\$4,250.00	0	\$0.00
Gravel Base (6")	Cu. Yds.	\$45.00	142	\$6,390.00	0	\$0.00
Fine Grade & Roll	Sq. Yds.	\$5.00	850	\$4,250.00	0	\$0.00
Concrete (4" Thickness)	Cu. Yds.	\$450.00	94	\$42,300.00	0	\$0.00
DRAINAGE						
12" RCP	Lin. Ft.	\$100.00	405	\$40,500.00	0	\$0.00
18" RCP	Lin. Ft.	\$110.00	1710	\$188,100.00	0	\$0.00
Drain Manholes	Each	\$4,500.00	19	\$85,500.00	0	\$0.00
Drain Invert (Concrete or Brick)	Each	\$300.00	19	\$5,700.00	0	\$0.00
Catch Basins	Each	\$4,000.00	7	\$28,000.00	0	\$0.00

			100% COST ESTIMATE		CONSTRUCTION	
			QUANTITY	VALUE	REMAIN'G QUANTITY	07/20/23 VALUE
	UNITS	\$/UNIT				
Catch Basin Frame & Grate	Each	\$900.00	7	\$6,300.00	0	\$0.00
Double-Inlet Catch Basins	Each	\$4,200.00	3	\$12,600.00	0	\$0.00
Double-Inlet Catch Basin Frame & Grate	Each	\$1,500.00	3	\$4,500.00	0	\$0.00
Drain Manhole Rim & Cover (24")	Each	\$875.00	19	\$16,625.00	0	\$0.00
18" RCP Flared End Sections	Each	\$1,200.00	3	\$3,600.00	0	\$0.00
Riprap	Cu. Yds	\$88.00	18	\$1,584.00	0	\$0.00
Fill Depression around DMH in Lot 1 Easement	Allow	\$500.00	0	\$0.00	1	\$500.00
Remove Construction Fence from Drain Easement	Allow	\$2,000.00	0	\$0.00	1	\$2,000.00
INFILTRATION BASINS						
Common Fill (Top of Berm)	Cu. Yds.	\$6.00	4,900	\$29,400.00	0	\$0.00
Finish Grading	Sq. Yds.	\$3.00	4,500	\$13,500.00	0	\$0.00
Spread Loam	Sq. Yds.	\$3.00	4,500	\$13,500.00	0	\$0.00
Hydroseeding	Sq. Yds.	\$2.00	4,500	\$9,000.00	0	\$0.00
Spillways (Riprap)	Cu. Yds.	\$88.00	55	\$4,840.00	0	\$0.00
Gabion Forebay (Riprap)	Cu. Yds.	\$88.00	70	\$6,160.00	0	\$0.00
Reseeding	Sq. Yds.	\$2.00	1,057	\$2,114.00	620	\$1,240.00
Sediment Removal	Cu. Yds.	\$35.00	1,050	\$36,750.00	430	\$15,050.00
WATER						
Fire Cistern	Allow	\$118,000.00	1	\$118,000.00	0	\$3,000.00
SEDIMENT AND EROSION CONTROLS						
Silt Fence & Straw Bales - Install	Lin. Ft.	\$8.00	3,600	\$28,800.00	0	\$0.00
Silt Fence & Straw Bales - Maintain	Lin. Ft.	\$4.00	0	\$0.00	0	\$0.00
ELECTRIC COMMUNICATIONS						
Electrical/CATV/Tel Conduit	Lin.Ft.	\$60.00	1,850	\$111,000.00	0	\$0.00
MISCELLANEOUS						
Bounds, Granite (Roadway)	Each	\$550.00	16	\$8,800.00	16	\$8,800.00
Bounds, Granite (Easements)	Each	\$550.00	51	\$28,050.00	51	\$28,050.00
Acceptance Plans	Sheet	\$1,500.00	3	\$4,500.00	3	\$4,500.00
As Built Plans	Sheet	\$1,900.00	6	\$11,400.00	6	\$11,400.00
Subtotal:				\$1,394,023.00		\$78,670.00
20% Contingency/Inflation:						\$15,734.00
PROJECT: ESTATES AT BULL MEADOW - SECTION 1				TOTAL:		\$94,404.00
TOTAL (Rounded):					*	\$94,000.00
20% of "100% COST ESTIMATE" (Rounded):				*		\$279,000.00
* This estimate was prepared to assist the Planning Board with establishing the amount of surety for this project.						
In accordance with Grafton Subdivision Rules and Regulations, the surety value established by the Board may						
vary from this estimate.						

SITE DEVELOPMENT/SUBDIVISION CONSTRUCTION BUDGET					T 508-856-0 F 508-856-0 gravesengineering.c	
PROJECT: ESTATES AT BULL MEADOW - SECTION 2						
PADDOCK RIDGE DRIVE STATION 12+50 TO LIMIT OF WORK BEYOND APPALOOSA DRIVE						
DATE: July 21, 2023						
Budgets of work for the entire project and for work yet to be completed.						
The following construction budget is based upon the Definitive Plan last revised:					09/20/18	
This estimate is based upon site visits performed through:					07/20/23	
					CONSTRUCTION	
					REMAIN'G	07/20/23
	UNITS	\$/UNIT	QUANTITY	VALUE	QUANTITY	VALUE
RIGHT OF WAY						
Clear & Grub	Acres	\$15,000.00	0.3	\$4,500.00	0	\$0.00
Finish Grading (Grass plots only)	Sq. Yds.	\$3.00	1,500	\$4,500.00	0	\$0.00
Spread Loam	Sq. Yds.	\$3.00	1,500	\$4,500.00	100	\$300.00
Hydroseeding	Sq. Yds.	\$2.00	1,500	\$3,000.00	100	\$200.00
Trees	Each	\$400.00	11	\$4,400.00	2	\$800.00
ROADWAY						
Demo. Appaloosa Drive cul-de-sac	Sq. Yds.	\$30.00	400	\$12,000.00	0	\$0.00
Prep Subgrade	Sq. Yds.	\$5.00	1,200	\$6,000.00	0	\$0.00
Gravel Base (12")	Cu. Yds.	\$45.00	400	\$18,000.00	0	\$0.00
Fine Grade & Roll	Sq. Yds.	\$5.00	1,200	\$6,000.00	0	\$0.00
Binder Course (2.75" Compacted Thk'ness)	Tons	\$105.00	183	\$19,215.00	0	\$0.00
Top Course (1.5" Compacted Thk'ness)	Tons	\$105.00	136	\$14,280.00	0	\$0.00
Granite Transition Pieces	Each	\$300.00	24	\$7,200.00	0	\$0.00
Granite Curb Inlets (Single)	Each	\$400.00	5	\$2,000.00	0	\$0.00
Vertical Granite Curb	Lin. Ft.	\$45.00	320	\$14,400.00	0	\$0.00
Sloped Granite Edging	Lin. Ft.	\$32.00	500	\$16,000.00	0	\$0.00
Sloped Granite Edging (Remove & Reset)	Lin. Ft.	\$20.00	200	\$4,000.00	0	\$0.00
Street Lights	Each	\$3,000.00	1	\$3,000.00	0	\$0.00
Raise Structures (Sewers, Drains, etc.)	Each	\$425.00	11	\$4,675.00	0	\$0.00
Asphalt Emulsion (Tack Coat)	Gal.	\$8.00	81	\$648.00	0	\$0.00
Street Sign	Each	\$125.00	1	\$125.00	0	\$0.00
Modular Block Retaining Wall	Sq. Ft.	\$35.00	4,100	\$143,500.00	0	\$0.00
Chain Link Fence	Lin. Ft.	\$40.00	370	\$14,800.00	0	\$0.00
Wood Guardrail	Lin. Ft.	\$40.00	370	\$14,800.00	0	\$0.00
Extend Driveway at 10 Appaloosa Drive	Allow	\$1,000.00	1	\$1,000.00	0	\$0.00
SIDEWALK						
Prep Subgrade	Sq. Yds.	\$5.00	260	\$1,300.00	0	\$0.00
Gravel Base (6")	Cu. Yds.	\$45.00	43	\$1,935.00	0	\$0.00
Fine Grade & Roll	Sq. Yds.	\$5.00	260	\$1,300.00	0	\$0.00
Concrete (4" Thickness)	Cu. Yds.	\$450.00	29	\$13,050.00	0	\$0.00
DRAINAGE						
8" HDPE Pipe	Lin. Ft.	\$80.00	95	\$7,600.00	0	\$0.00
12" RCP	Lin. Ft.	\$100.00	82	\$8,200.00	0	\$0.00
Drain Manholes	Each	\$4,500.00	6	\$27,000.00	0	\$0.00
Drain Invert (Concrete or Brick)	Each	\$300.00	6	\$1,800.00	0	\$0.00
Catch Basins	Each	\$4,000.00	4	\$16,000.00	0	\$0.00
Catch Basin Frame & Grate	Each	\$900.00	4	\$3,600.00	0	\$0.00

			100% COST ESTIMATE		CONSTRUCTION	
			QUANTITY	VALUE	REMAIN'G QUANTITY	07/20/23 VALUE
Drain Manhole Rim & Cover (24")	Each	\$875.00	6	\$5,250.00	0	\$0.00
12" RCP Flared End Sections	Each	\$1,200.00	1	\$1,200.00	0	\$0.00
8" HDPE Flared End Sections	Each	\$600.00	1	\$600.00	0	\$0.00
Riprap	Cu. Yds	\$88.00	6	\$528.00	0	\$0.00
Box Culvert (2'x3')	Allow	\$35,000.00	1	\$35,000.00	0	\$0.00
Open Bottom Box Culvert (25'x6')	Lin. Ft.	\$184,000.00	1	\$184,000.00	0	\$0.00
Remove & Reset Appaloosa Dr. Catch Basin #1	Allow	\$1,000.00	1	\$1,000.00	0	\$0.00
Remove & Reset Appaloosa Dr. Catch Basin #2	Allow	\$1,000.00	1	\$1,000.00	0	\$0.00
Subsurface Infiltration Basin	Allow	\$40,000.00	1	\$40,000.00	0	\$0.00
SEDIMENT AND EROSION CONTROLS						
Silt Fence & Straw Bales - Install	Lin. Ft.	\$8.00	1,100	\$8,800.00	0	\$0.00
Silt Fence & Straw Bales - Maintain	Lin. Ft.	\$4.00	0	\$0.00	0	\$0.00
ELECTRIC COMMUNICATIONS						
Electrical/CATV/Tel Conduit	Lin.Ft.	\$60.00	465	\$27,900.00	0	\$0.00
MISCELLANEOUS						
Bounds, Granite (Roadway)	Each	\$550.00	6	\$3,300.00	6	\$3,300.00
Bounds, Granite (Easements)	Each	\$550.00	5	\$2,750.00	5	\$2,750.00
Acceptance Plans - See Section 1	N/A	N/A	N/A	N/A	N/A	N/A
As Built Plans - See Section 1	N/A	N/A	N/A	N/A	N/A	N/A
				Subtotal:		\$715,656.00
				20% Contingency/Inflation:		\$1,470.00
PROJECT: ESTATES AT BULL MEADOW - SECTION 2				TOTAL:		\$8,820.00
				TOTAL (Rounded):	*	\$9,000.00
				20% of "100% COST ESTIMATE" (Rounded):	*	\$143,000.00
<p>* This estimate was prepared to assist the Planning Board with establishing the amount of surety for this project. In accordance with Grafton Subdivision Rules and Regulations, the surety value established by the Board may vary from this estimate.</p>						